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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,785	12/05/2003	You-Pang Wei	033994-005	2286

21839 7590 10/06/2006

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ALEXANDRIA, VA 22313-1404

EXAMINER	
LUU, CUONG V	

ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/729,785	WEI ET AL.	
	Examiner	Art Unit	
	Cuong V. Luu	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *16-25* is/are allowed.

6)☒ Claim(s) *1-5, 8-9, 12-13, and 26-30* is/are rejected.

7)☒ Claim(s) *6,7,10,11,14 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-30 are pending. Claims 1-30 have been examined. Claims 16-25 are allowed. Claims 6-7, 10-11, and 14-15 have been objected. Claims 1-5, 8-9, 12-13, and 26-30 have been rejected.

The Examiner would like to thank the Applicant for the well-presented response, which was useful in the examination. The Examiner appreciates the effort to perform a careful analysis and make appropriate amendments to the claims.

Response to Amendment

1. The amendment to the specification on paragraph 0023 has been considered and accepted. The 35 U.S.C. 101 rejection of the specification is withdrawn.
2. The amendment to the specification on paragraph 0025 has been considered and accepted. The 35 U.S.C. 112, second paragraph rejections of claims 1-30 are withdrawn.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with

this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-3 and 26-27 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2 and 5-7 of copending Application No. 10729596. Although the conflicting claims are not identical, they are not patentably distinct from each other.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

3. As per claims 1 and 26, they are anticipated by claims 1, 2 and 6 of application 10729596. Claim 1, 2 and 6 of the application 10729596 contains all the limitations of claims 1 and 26 of the instant application. Claims 1 and 26 of the instant application, therefore, is not patently distinct from the earlier application's claim and as such is unpatentable for obvious-type double patenting.

4. As per claims 2 and 27, they are anticipated by claim 7 of application 10729596. Claim 7 of the application 10729596 contains all the limitations of claims 2 and 27 of the instant application. Claims 2 and 27 of the instant application, therefore, is not patently distinct from the earlier application's claim and as such is unpatentable for obvious-type double patenting.

5. As per claim 3, it is anticipated by claim 5 of application 10729596. Claim 5 of the application 10729596 contains all the limitations of claim 3 of the instant application. Claim 3

of the instant application, therefore, is not patently distinct from the earlier application's claim and as such is unpatentable for obvious-type double patenting.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 and 26-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Yuan et al, herein Yuan, (U.S. Patent 6,249,901 B1).

6. As per claim 1, Yuan teaches a method of performing a glitch check in simulating a circuit, the method comprising the following steps:

determining a current maximum and minimum values for an optimization parameter of the circuit (col. 20, lines 62-65);

determining a signal characteristic value for circuit simulation based on the current maximum and minimum optimization parameters (col. 19, lines 18-21. The pulse width is the characteristic value to be determined);

determining a current averaged optimization parameter (col. 20, lines 25-28);

calculating a prime criterion parameter based on the current minimum and maximum optimization parameters and the signal characteristic value (col. 22, lines 11-20. The prime criterion parameter is the error calculated using the equation at lines 19-20);

determining whether the prime criterion parameter converges to a prescribed range (col. 20, lines 21-25);

if the prime criterion parameter converges into the prescribed range then parsing measurement results from the circuit simulation (col. 20, lines 27-30);

if the prime criterion parameter does not converge into the prescribed range (col. 20, lines 31-32);

simulating the circuit based on the current optimization parameter (col. 20, lines 35-39);

calculating a new signal characteristic value using the circuit simulation (col. 22, lines 35-41. The step 592 implies the calculation of a new signal characteristic value using the circuit simulation);

determining the results of the circuit simulation based on the new signal characteristic value (col. 22, lines 35-41. These lines teach obtaining the results of the circuit simulation based on the signal characteristic value); and

setting the current optimization parameter to a new optimization parameter in response to the new signal characteristic value (col. 22, lines 35-41).

7. As per claim 2, Yuan teaches the prime criterion parameter is a bisection error of the circuit simulation (col. 22, lines 11-20. The prime criterion parameter is the error calculated using the equation at lines 19-20).

8. As per claim 3, Yuan teaches the process reiterates until the prime criterion parameter converges into the prescribed range (col. 22, lines 1-25).

9. As per claim 4, Yuan teaches the signal characteristic value is the width of the signal pulse (col. 19, lines 18-21).

10. As per claim 5, Yuan teaches the width of the signal pulse is measured respectively for simulations based on the current minimum, current maximum and current optimization parameters (col. 20, lines 48-67; col. 21, lines 1-16. In these lines Yuan teaches optimizing setup time, hold time, and pulse width, and recited example of measuring and optimizing setup time based on current minimum, current maximum and current optimization parameters. It is inherent that the hold time optimization is performed and measured using the same method. It is well known to one of ordinary skill in the art that pulse width of a data signal for feeding to input of a memory is measured using setup and hold time. Therefore, it is inherent that Yuan teaches the width of the signal pulse is measured respectively for simulations based on the current minimum, current maximum and current optimization parameters).

11. As per claim 26, Yuan teaches a method for performing a reliability check and timing characterization simultaneously on a simulated circuit, the method comprising the following steps:

defining a path of the circuit to be analyzed (col. 19, lines 38-43);

determining an initial optimization parameter and criterion parameter for the simulation of the circuit (col. 19, lines 18-21; col. 22, lines 11-20);

determining a signal characteristic in response to the optimization parameter (col. 19, lines 18-21);

performing the circuit simulation (col. 20, lines 35-39);

determining whether the criterion parameter converges such that if the criterion parameter converges then the signal characteristic is optimized otherwise continuing to perform the simulation with a new optimization parameter until a criterion parameter converges (col. 20, lines 21-39).

12. As per claim 27, this limitation has already been discussed in claim 2. It is, therefore, rejected for the same reasons.

13. As per claim 28, this limitation has already been discussed in claim 4. It is, therefore, rejected for the same reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 8-9, 12-13, and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuan.

14. As per claim 8, It is well known to one of ordinary skill in the art that height of a signal pulse is a characteristic of a signal that decides if that signal can be written in a storage device (latches, flip-flop, or memory cell). Therefore, it is obvious to one of ordinary skill in the art to assign height of a signal pulse as a characteristic to perform the method as recited in claim 1 which Yuan anticipates. Claim 8 is, therefore, rejected.

15. As per claim 9, this limitation has already been discussed in claim 5. It is, therefore, rejected for the same reasons.

16. As per claim 12, It is well known to one of ordinary skill in the art that slew time of a signal pulse is a characteristic of a signal that decides if that signal can be written in a storage device (latches, flip-flop, or memory cell). Therefore, it is obvious to one of ordinary skill in the art to assign slew time of a signal pulse as a characteristic to perform the method as recited in claim 1 which Yuan anticipates. Claim 12 is, therefore, rejected.

17. As per claim 13, this limitation has already been discussed in claim 5. It is, therefore, rejected for the same reasons.

18. As per claim 29, this limitation has already been discussed in claim 4. It is, therefore, rejected for the same reasons.

19. As per claim 30, this limitation has already been discussed in claim 5. It is, therefore, rejected for the same reasons.

Allowable Subject Matter

Claims 6, 7, 10, 11, 14, and 15 are objected to as being dependent upon rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

20. As per claim 6, the prior art does not teach the current optimization parameter is set to be the current minimum optimization parameter if both simulations based on the current minimum and current optimization parameters indicate the same status, either both succeed or both fail, otherwise the current optimization parameter is set to be the current maximum optimization parameter as recited by the claimed invention.

21. As per claim 7, it is indicated allowable because of depending on allowable claim 6.

22. As per claim 10, the prior art does not teach the current optimization parameter is set to be the current minimum optimization parameter if both simulations based on current minimum and current optimization parameters indicate the same status, either both succeed or both fail, otherwise the current optimization parameter is set to be the current maximum optimization parameter.

23. As per claim 11, it is indicated allowable because of depending on allowable claim 11.

24. As per claim 14, the prior art does not teach the current optimization parameter is set to be the current minimum optimization parameter if both simulations based on current minimum and current optimization parameters indicate the same status, either both succeed or both fail, otherwise the current optimization parameter is set to be the current maximum optimization parameter.

25. As per claim 15, it is indicated allowable because of depending on allowable claim 14.

Claims 16-25 are allowed. The following is an examiner's statement of reasons for allowance:

26. As per claim 16, the prior art teaches a method for performing a glitch check on multiple nodes of a simulated circuit, the method comprising the following steps:

determining a current optimization parameter from a maximum optimization parameter and a minimum optimization parameter of the circuit simulation;

calculating a prime criterion parameter based on the maximum and minimum optimization parameters;

determining whether the prime criterion parameter converges to a prescribed range;

if the prime criterion parameter converges into the prescribed range, then saving the current optimization parameter as a setup and hold time for circuit simulation calculations;

if the prime criterion parameter does not converge into the prescribed range;

simulating the circuit based on the current optimization parameter;

calculating a current prime criterion parameter based on the circuit simulation;

but does not teach:

measuring a secondary criterion parameter for all reference nodes;

setting the status of the current simulation to fail if the simulation result does not meet a user-prescribed limit or there is any value of the secondary criterion parameters of all reference nodes greater than the user-prescribed limit; and

setting the status of the current simulation to succeed if the simulation result meets the user-prescribed limit and the values of the secondary criterion parameters of all the reference nodes are not greater than the user-prescribed limit.

As recited by the claimed invention.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cuong V. Luu whose telephone number is 571-272-8572. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah, can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. An inquiry of a

general nature or relating to the status of this application should be directed to the TC2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CVL